DEAKIN UNIVERSITY

MAF900

Advanced Data Methods

Assessment 2

RESEARCH REPORT

Prepared For

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1. Introduction

The resilience of U.S. firms amid the 2025 trade policy upheaval raises critical questions about how companies manage liquidity under heightened uncertainty. Despite forecasts of severe economic downturns, investment and employment remained relatively stable. This paradox suggests that firms mitigated risks by relying heavily on internal liquidity buffers, especially cash reserves, to sustain operations and absorb shocks. This report investigates the relationship between corporate cash holdings and macroeconomic uncertainty using the World Uncertainty Index (WUI) as a proxy for economic and policy uncertainty. Firm-level financial data from Compustat, covering U.S.-incorporated companies from 2010 to 2024, serves as the empirical basis. The analysis first describes key firm characteristics before exploring time-series trends linking cash holdings and uncertainty. It then compares firm liquidity behavior across periods of above and below average uncertainty, and finally relates findings to hypotheses on precautionary motives, transactional motives, and financial constraints affecting cash policies.

2. Results and Descriptive Evidence

2.1 Descriptive Statistics

The report documents the descriptive statistics of the sample in Table 1. The dataset comprises 54,389 firm–year observations of U.S.-incorporated companies over the period 2010–2024, drawn from Compustat. The dependent variable is the natural logarithm of the ratio of cash to total assets, less cash (Ln(Cash/Net Assets)). Change in Cash/Net Assets is estimated as the first difference in the ratio, capturing adjustments in firms' liquidity positions over time.

The primary independent variable is the World Uncertainty Index (WUI), averaged annually for the United States, which provides a proxy for macroeconomic and policy uncertainty. Additional variables include a dividend dummy, equal to one if a firm pays dividends in a given year and zero otherwise, and firm size, proxied by the natural logarithm of total assets. Firm-level controls are constructed as follows. The ratio of Cash flow/Total Assets is measured as earnings after deducting interest expenses, dividends, and taxes, but before depreciation, divided by total assets. Cash flow volatility is calculated as the standard deviation of cash flows over a rolling five-year window. Research and development expenditures and capital expenditures are each scaled by total assets, and leverage is defined as the ratio of total debt to

total assets. Sales growth is measured as the annual percentage change in net sales. To mitigate the influence of extreme observations, all continuous variables are winsorized at the 1 percent and 99 percent levels.

Variable	Mean	Median	Mode	Standard Deviation	N
Ln (Cash/Net Assets)	-1.723	-1.833	3.793	2.155	53281
Change in Cash/Net Assets	-0.123	-0.001	-22.192	3.760	46455
World Uncertainty Index	0.255	0.215	0.223	0.111	54389
Dividend Dummy	0.265	0.000	0.000	0.442	54380
Firm Size	5.363	5.780	-4.343	3.115	54389
R&D/Sales	3.322	0.065	0.000	16.820	30650
Cash Flow/Total Assets	-0.953	0.028	0.299	4.574	54389
Capital Expenditures/Total Assets	0.041	0.021	0.000	0.061	54304
Leverage	0.663	0.239	0.000	2.284	54389
Sales Growth	0.266	0.058	-1.000	1.239	42326
Cash Flow Volatility (5y)	1.029	0.047	48.481	5.584	28695

Table 1. *Descriptive statistics*

The summary statistics highlight several notable features. The average log ratio of cash to net assets is –1.723, with a median of –1.833. The mean annual change in the cash to net assets ratio is –0.123. The mean value of WUI over the sample period is 0.255. Around 27% of firm-year observations report dividend payments, with firm size averaging 5.363. The mean R&D to sales ratio is 3.322%. Cash flow relative to assets averages –0.953, while five-year cash flow volatility averages 1.03. Leverage has a mean of 0.663, and capital expenditures account for about 4% of assets. Finally, the average annual sales growth is 27%, with considerable variation across firms. These statistics underscore a diverse sample encompassing firms of varying sizes, risk profiles, financial health, and growth trajectories, adequately capturing the heterogeneous corporate landscape of the U.S. economy.

2.2 Time-Series Trends

Figure 1 displays a close co-movement between average corporate cash holdings and the WUI from 2010 through 2024. Several episodes of elevated uncertainty such as the Eurozone debt crisis of 2012, the Chinese economic slowdown in 2015, the intensification of the U.S.–China trade war in 2019, and the COVID-19 shock in 2020, correspond with marked increases in

liquidity buffers. Notably, 2023 presents renewed pressure on uncertainty and cash holdings amid geopolitical tensions and global supply disruptions.

This pattern supports the notion that firms strategically adjust cash reserves in response to perceived macroeconomic and policy risks, consistent with precautionary liquidity motives. The dynamic alignment between WUI fluctuations and cash holding adjustments strongly suggests that firms view cash accumulation as a critical tool for risk mitigation in uncertain periods.

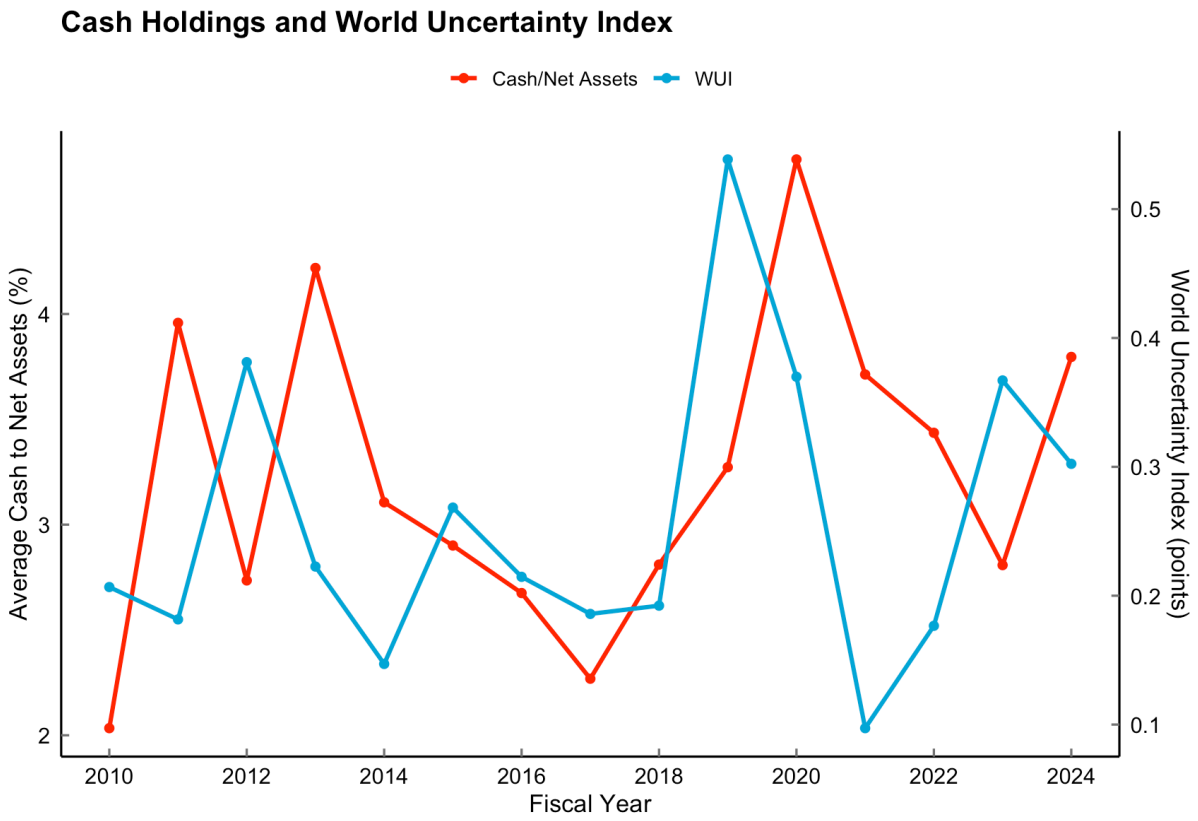

Figure 1. Average cash/net assets and WUI from 2010 to 2024.

2.3 Above vs. Below Average WUI

Figure 2 contrasts average cash to net assets ratios in years of above-average WUI versus below-average WUI. Firms operating during higher uncertainty periods hold approximately 3.6% of net assets in cash on average, compared to 3.1% in lower uncertainty years. The difference, while seemingly modest, is economically meaningful when multiplied across large firms and highlights a robust behavioral response.

This evidence aligns with the precautionary motive hypothesis (H1) that elevated uncertainty induces firms to increase liquidity buffers. It also resonates with transactional motives (H2), as rising uncertainty often correlates with supply chain disruptions and cost volatility, necessitating higher operational liquidity. Although the figure provides a descriptive comparison, it does not adjust for confounding factors such as firm size, leverage, or capital expenditures, emphasizing the need for subsequent multivariate analyses.

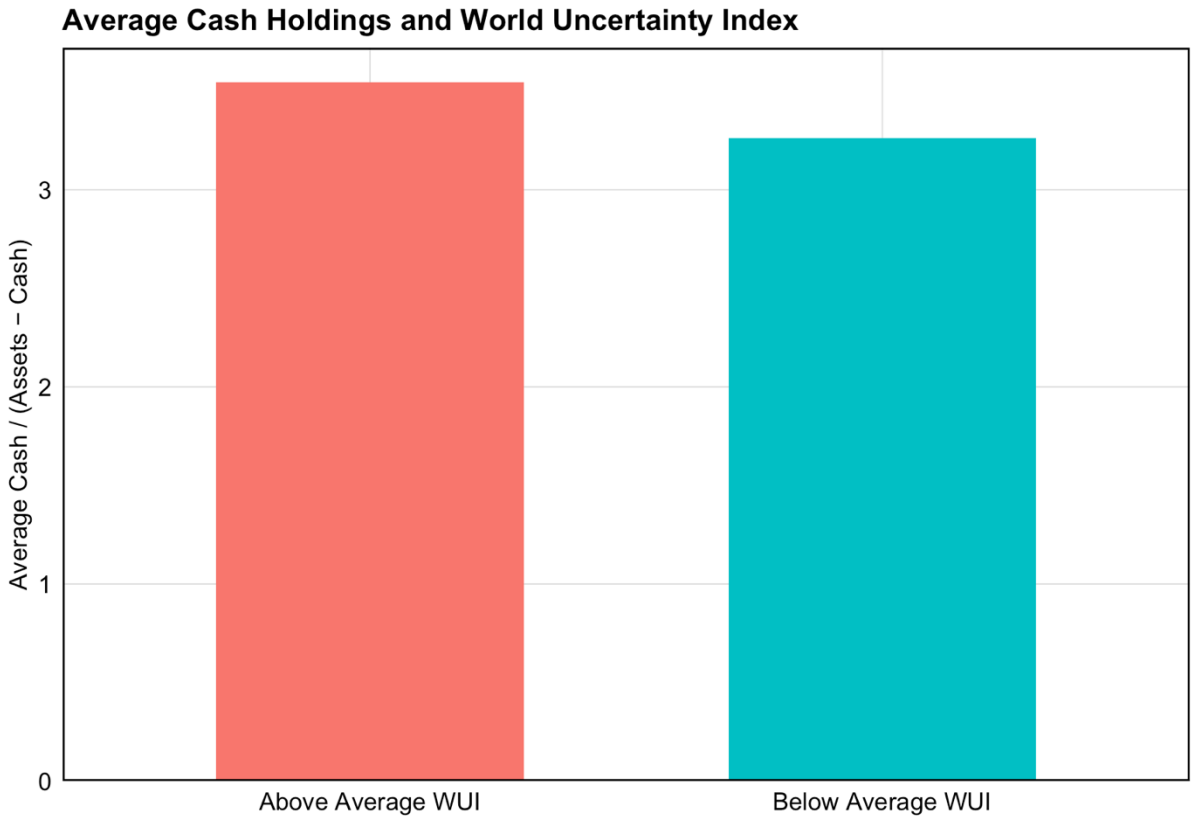

Figure 2. Mean cash/net assets and WUI. The sample is collected from the years 2012, 2015, 2019, 2020, and 2023, and consists of firm–year observations of U.S.–incorporated companies, as reported in Compustat North America.

2.4 Linking Results to Research Question and Hypotheses

The evidence supports the central question of how tariff-related policy uncertainty influences corporate cash holdings. While direct measures of tariff exposure (tariff-affected inputs in cost of goods sold or export sales) are unavailable, the WUI offers a credible proxy encapsulating domestic and global shocks transmitted via financial, supply chain, and policy channels.

The synchronized rise in cash holdings with spikes in WUI substantiates Hypothesis 1 (Precautionary Motive), where increased policy uncertainty elevates perceived risk and drives firms, particularly those with volatile cash flows, to accumulate cash as insurance.

The comparison in Figure 2 strengthens this evidence and suggests that liquidity strategies may also be influenced by Hypothesis 2 (Transactional Motive), as firms anticipate operational disruptions during uncertain periods. Furthermore, the observed heterogeneity in firm size, leverage, and cash flow volatility points toward Hypothesis 3 (Financial Constraint Effect), implying that smaller or financially constrained firms may respond more aggressively by increasing cash holdings.

2.5 Limitations and Future Directions

The primary limitation is the lack of granular, firm-specific tariff exposure data, which constrains the ability to directly test transactional and supply chain mechanisms. However, the use of WUI as a broad, standardized measure of uncertainty mitigates this to some extent by capturing aggregate risk factors affecting firms universally.

Compustat data, while comprehensive, does not include proprietary or supply-chain level information often required to parse specific tariff impacts. Future research should aim to integrate such datasets or employ firm disclosures and industry-level trade data to better disentangle the channels through which trade policy uncertainty affects liquidity management.

3. Conclusion

This report delivers robust descriptive evidence that U.S. firms actively manage cash holdings in response to macroeconomic and policy uncertainty as proxied by the World Uncertainty Index. The findings affirm that firms increase liquidity during periods of heightened uncertainty consistent with precautionary and transactional motives, and that financial constraints modulate this behavior. Despite data limitations, the analysis presents a valuable foundation for more formal econometric testing and underscores the importance of corporate liquidity strategies during volatile policy environments such as the 2025 trade shocks. These insights carry implications for firm risk management and policy formulation aimed at stabilizing business operations in uncertain global contexts.